MEMORANDUM

SUBJECT: Oxydemeton-methyl. Dietary Exposure and Risk Estimates for Reregistration.

FROM: Richard Griffin
Reregistration Branch II
Health Effects Division

THROUGH: A. Nielsen, Branch Senior Scientist
Reregistration Branch II
Health Effects Division

TO: P. Deschamp
Reregistration Branch II
Health Effects Division (7509C)

Dietary risk estimates for the HED chapter of the oxydemeton-methyl (ODM) Reregistration Eligibility Document have been completed by RRBII. The following is a revision of the 11/21/97 R. Griffin risk assessment memo, to account for revisions made by the HED Hazard Identificatolon Assessment Review Committee (report final, 5/7/98).

*Exposure Data:*

Tolerances for ODM residues in food and feed crops are established under 40 CFR 180.330(a), and a regional registration for apricots under 180.330(b). From this listing, apples, grapes, plums (prunes), and apricots have been excluded from risk assessment since the use pattern for these commodities is considered to be a "nonfood" use (tolerances for these crops will be revoked as part of tolerance reassessment). Registrations for blackberries, raspberries, potatoes, and peas are now inactive and also have been excluded from risk assessment (tolerances will be revoked). Citrus, field corn, popcorn, sorghum, safflower, onions, pears, turnips, and snap beans have been deleted from the current marketing labels (but *not* deleted from the Manufacturing Use Product label). At the request of SRRD, these deleted commodities have been retained in the following risk assessment. In addition to the above commodities, ODM risk assessment is based on strawberries, filberts, walnuts, pears, melons, cucurbits, peppers, broccoli, brussels sprouts, cabbage, cauliflower, sweet corn, sugar beets, cotton, mint, milk, and meat products.

*Theoretical Maximum Residue Contribution (TMRC).* To establish a baseline for ODM dietary risk assessment, a TMRC risk assessment for ODM was completed based on the ODM tolerances outlined above and an assumption that 100 percent of each commodity has been treated with ODM. Chronic exposure estimates were compared to the ODM *chronic* Reference Dose of 0.0005 mg/kg/day (with risk expressed as percent Reference Dose). The resultant risk estimates range from 800% RfD for the general U.S. population, to a high of 1,800% RfD for the population sub-group; children (1-6 yrs old).

A refinement of the TMRC risk assessment was completed using the following information:

*Percent crop treated data.* The Biological and Economic Analysis Division completed an initial Quantitative Usage Aanalysis (QUA) on 12/16/96 (S. Zavolta). The percent crop treated estimates of this QUA were modified somewhat following a BEAD review (S. Wise, 9/17/97) of data sent in by the registrant. It should be noted that data indicated no ODM use on several commodities (limas and snapbeans, corn, walnuts, grapefruit, safflower). However, to be consistent with other HED risk assessments, all such commodities are assessed with a default minimum assumption of 1% crop treated. .

*Anticipated Residue Data.* RRBII (B. Cropp-Kohlligian memo, 11/97) has used dairy cattle feeding studies to estimate ODM "anticipated residues" for milk. The residue level used for chronic exposure/risk assessment is 0.004 ppm. Tolerance level residue is assumed for all other ODM commodities.

*Risk Estimates*:

Based on the conclusions of the Hazard Identification Committee, dietary risk for ODM is assessed both for acute (one-day) exposure and chronic (assumed life-time) exposure.

*Acute:* To assess acute dietary risk from food sources the DRES program calculates total, one-day, exposure based on the reported consumption of foods and uses an *upper-end* residue estimate (in this case tolerance level residues) for each food. The *upper-end* of the resultant exposure distribution is then compared to the *acute* Reference Dose, and risk is expressed as a percent of the acute Reference Dose. The DRES acute analysis estimates single-day exposures for the overall U.S. population and four population subgroups (males 13+ yrs, females 13+ yrs, infants <1 yr, and children 1-6 yrs). The analysis is based on individual food consumption as reported by respondents in the USDA 1977-78 Nationwide Food Consumption Survey. The DRES acute dietary assesssment for ODM is considered a screening (or Tier 1) method since it has included all commodities, residues are asssumed to be at tolerance level, and actual percent usage on each crop is not factored in.

The ODM acute Reference Dose is 0.0008 mg/kg/day, based on the LOEL (2.5 mg/kg/day) of an acute neurotoxicity study in the rat which demonstrated plasma, RBC, and brain ChE inhibition. The uncertainty factor is 3,000 based on 10X for inter-species extrapolation, 10X for

intra-species variability, 10X for data gap in lieu of a specific locus test, and 3X for lack of a NOEL.

Based on the above assumptions for ODM dietary exposure, the percent ODM acute Reference Dose estimates are:

| | |
|---|---|
| Overall U.S. population: | 3,750 |
| Infants < I year old: | 6,250 |
| Children 1-6 years old: | 5,000 |

Since the above Tier I estimates greatly exceed 100% of the ODM RfD, the Registrant has agreed to provide an acute dietary risk assessment based on recent probabilistic (monte-carlo) methods for exposure estimation.

*Chronic:* To assess chronic risk, the DRES program calculates exposure based on *averaged* food consumption estimates (from the 1977-78 USDA NFC Survey) and on tolerances and/or appropriate anticipated residue estimates. Chronic dietary risk is expressed as a percent of the *chronic* Reference Dose and is estimated by the DRES system for the generall U.S population and 22 population sub-groups, including infants and children (which typically demonstrate the highest exposure). As shown above, the TMRC assessment for ODM provided risk estimates for all population groups that exceed the ODM Reference Dose of 0.0005 mg/kg body weight/day. Refining the TMRC risk estimate with the use of percent crop treated data and anticipated residues for milk, significantly reduces the estimated exposure and risk. With the use of this information, the highest chronic risk estimate is for non-nursing infants (65% RfD).

cc: DRES files